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Assessments of the extent to which health-care providers involve patients in decision making: a systematic review of studies using the OPTION instrument

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Abstract

Background We have no clear overview of the extent to which health-care providers involve patients in the decision-making process during consultations. The Observing Patient Involvement in Decision Making instrument (OPTION) was designed to assess this.

Objective To systematically review studies that used the OPTION instrument to observe the extent to which health-care providers involve patients in decision making across a range of clinical contexts, including different health professions and lengths of consultation.

Search strategy We conducted online literature searches in multiple databases (2001–12) and gathered further data through networking.

Inclusion criteria (i) OPTION scores as reported outcomes and (ii) health-care providers and patients as study participants. For analysis, we only included studies using the revised scale.

Data extraction Extracted data included: (i) study and participant characteristics and (ii) OPTION outcomes (scores, statistical associations and reported psychometric results). We also assessed the quality of OPTION outcomes reporting.

Main results We found 33 eligible studies, 29 of which used the revised scale. Overall, we found low levels of patient-involving behaviours: in cases where no intervention was used to implement shared decision making (SDM), the mean OPTION score was 23 ± 14 (0–100 scale). When assessed, the variables most consistently associated

with higher OPTION scores were interventions to implement SDM (n = 8/9) and duration of consultations (n = 8/15).

Conclusions Whatever the clinical context, few health-care providers consistently attempt to facilitate patient involvement, and even fewer adjust care to patient preferences. However, both SDM interventions and longer consultations could improve this.

Background

Known as the crux of patient-centred care,[1] shared decision making (SDM) is the process by which the patient and the health-care provider make health-related decisions together based on the best available evidence.[2,3] By redefining patients and clinicians as partners willing to share their knowledge, preferences and values throughout the decision-making process,[2,4,5] SDM brings forth new opportunities to improve health outcomes and health-care services.[6–11] While patients are increasingly interested in playing this new, more active role in the medical decision-making process,[12,13] they seem unable to involve themselves as much as they want to during clinical encounters.[14–16] And while health-care providers claim they are receptive towards SDM, they appear to dislike many of their patients' attempts to engage in SDM.[17] Apart from these observations, little is known about the extent to which health-care providers actually facilitate patient involvement during routine clinical consultations and what behaviours they should adopt to improve the situation. Similarly, little is known about how the clinician's effort to involve patients in decision making varies depending on the clinical context, that is, the health-care provider's profession, the medical condition addressed or the length of consultation.[18,19]

Objective assessments of patient–clinician encounters are essential if we are to judge whether SDM is becoming a reality across different clinical contexts. Increasing dissemination of SDM measurement instruments suggests that rigorous appraisals are taking place on a broader scale than ever before.[20,21] Formerly, these instruments measured SDM (either the process or some of its related behaviours, such as patient involvement) from the patient's perspective, but in the past decade new instruments have been devised to measure SDM from the perspective of an observer, using recordings of consultations as the data source.[21] Observing Patient Involvement in Decision Making (OPTION) was one of the first instruments designed to measure the extent to which health-care providers involve patients in decision making from an observer's perspective.[22,23]

OPTION is still the most frequently used instrument for measuring patient involvement from an observer's viewpoint and has been used in many different countries and clinical situations.[21] Validation studies have been performed in English,[22,23] French,[24] German[25] and Italian.[26,27] The OPTION instrument was devised following a systematic review[19] showing that no 'observer' instrument had yet been designed to assess the specific construct of 'patient involvement'. Several observer instruments similar to OPTION now exist,[21,28–33] but OPTION distinguishes itself by focusing solely on behaviours initiated by the health-care provider.

Although a systematic review of 25 studies using OPTION was published recently, it focused only on its psychometric and methodological characteristics.[34] The objective of our review was rather to look at which patient-involving behaviours could be observed more consistently, what overall levels of patient involvement are and how these vary across different clinical contexts and with differing participant characteristics.

Methods

The OPTION instrument

The OPTION instrument was designed to rate the discursive content of a consultation, focusing on a single 'index problem'. The rating process always follows the same set of rules. Based on recordings of the medical consultation, the observer rates the health-care provider's level of expertise for 12 key 'patient-involving' behaviours using a scale from 0 to 4. The sum of all behaviour scores, standardized to produce a value ranging from 0 to 100, represents the overall level of 'patient-involving competencies' displayed by the health-care provider throughout the consultation (see Table 1). The first OPTION instrument[23] was succeeded by a second version in 2003 (published in 2005).[22] While the 12 key behaviours did not change from one version to the next, their phrasing was slightly revised. Also, the original – *attitudinal* – version of the scale, measured from 0 (strongly disagrees with the statement that the behaviour was observed) to 4 (strongly agrees with the statement that the behaviour was observed), was replaced by a *magnitude* scale, where 0 indicates the behaviour was not observed and 4 indicates it was performed to a high standard.

Search strategy

Between May and June 2012, we conducted an electronic literature search covering all years since OPTION was created (2001). Using 'Elwyn G[AU]' and 'OPTION scale' as separate search terms, we gathered references on the EBSCO (CINAHL Plus, Lista), Embase, Pubmed, Google Scholar and Web of Science databases. We screened references in relevant literature reviews performed up to 2012,[21,34] and we identified authors likely to have recently used the OPTION instrument in studies yet unpublished, using three sources: a private list of authors who had consulted GE (developer of the instrument) about OPTION, the listserv of the Society for Medical Decision Making (shared-l@list.msu.edu) and the 'Shared@EACH –Shared Decision Making Network' Facebook page.

Inclusion criteria

We included studies whose outcomes included OPTION scores derived from either the first or second version of the instrument (Table 1) and whose participants included health-care providers (including pre-licensure ones), and patients, including unannounced standardized patients and surrogates (e.g. parents making decisions regarding their child's health). For analysis, we only included eligible studies that used the second version of OPTION. We did not pool data derived from both versions of OPTION, first because Elwyn *et al*. have shown that even when used to assess the same consultation, they produced very different scores (mean scores dropped from 17 ± 8[23] to 3 ± 2[22]) and second because the first version of the instrument is no longer used by researchers.

Study selection

One reviewer downloaded all search results to a reference database, removed duplicates, then identified and retrieved the full text of all potentially relevant titles or abstracts. Two reviewers independently appraised these texts for eligibility (Cohen's $\kappa = 0.98$) and resolved disagreements through discussion.

Data extraction

Two independent reviewers extracted the following information: (i) main study characteristics (e.g. author, citation, publication year, country, rated media, scale version) and sample characteristics (e.g. number and length of rated consultations, clinical setting, number of health professionals, health profession, age and gender of patients) and (ii) OPTION outcomes, including item scores, reported statistical associations between study characteristics and total scores, and psychometric results such as inter- and intra-rater reliability and internal consistency.

Table 1 OPTION behaviours (items) and magnitude scale design

Item	Behaviour description	Referred to in text as
1	The clinician draws attention to an identified problem as one that requires a decision-making process	Identifying problem
2	The clinician states that there is more than one way to deal with the identified problem ('equipoise')	Explaining equipoise
3	The clinician assesses patient's preferred approach to receiving information to assist decision making (e.g. discussion in consultations, read printed material, assess graphical data, use videotapes or other media)	Assessing preferred approach
4	The clinician lists 'options', which can include the choice of 'no action'	Listing options
5	The clinician explains the pros and cons of options to the patient (taking 'no action' is an option)	Explaining pros and cons
6	The clinician explores the patient's expectations (or ideas) about how the problem(s) are to be managed	Exploring expectations
7	The clinician explores the patient's concerns (fears) about how the problem(s) are to be managed	Exploring concerns
8	The clinician checks that the patient has understood the information	Checking understanding
9	The clinician offers the patient explicit opportunities to ask questions during the decision-making process	Offering opportunities for questions
10	The clinician elicits the patient's preferred level of involvement in decision making	Eliciting preferred involvement
11	The clinician indicates the need for a decision-making (or deferring) stage (how the decision is made is not evaluated – could be paternalistic. How the decision is made between the participants and who takes 'control' is not evaluated)	Indicating need for decision
12	The clinician indicates the need to review the decision (or deferment)	Indicating need to review/defer

Response*	Scale
0	There is no attempt to perform the behaviour
1	There is a perfunctory or unclear attempt to perform the behaviour
2	The behaviour is performed at baseline skill level
3	The behaviour is performed to a good standard
4	The behaviour is performed to a high standard

*When using OPTION, the observer (or 'rater') focuses on the verbal aspects of one single part of the consultation identified as the 'index problem'. This index problem, among all problems discussed during the medical encounter, refers to the one in relation to which 12 specific patient-involving behaviours are appraised on a 5-point scale. While the scale was originally a Likert 'attitude' scale, it is now known as a 'magnitude' scale ranging from 0, if the behaviour of interest is not observed, to 4, if the behaviour is exhibited to a high standard. To each specific behaviour, the rater must assign a value known as the 'OPTION item score'. The 'OPTION total score' represents the sum of all item scores standardized to produce a value ranging from 0 to 100.

Quality assessment

We assessed the methodological quality of the studies published (peer-reviewed only) by documenting which ones followed a set of reporting guidelines developed by our team in regard to OPTION outcomes (scores and psychometric results) and to the rating process (number of observers). We tailored all guidelines to reflect our view of what outcomes, if reported, could be used (i) to guide future evaluation and implementation projects in the field of SDM and (ii) to appraise the methodology used to produce the results.

Data analysis

We summarized the main characteristics of all studies using descriptive statistics such as frequencies, averages (mean or median), ranges or dispersion measures [standard deviation (SD), interquartile range (IQR)]. For most quantitative characteristics, we first collected all available averages (mean value if available,

otherwise median), and then computed the overall average of study averages. We also described the distribution (overall and by subgroup) of average OPTION scores (total and by item), including only studies whose OPTION scores were produced using the revised (magnitude) version of the scale. We compared OPTION total scores and item scores according to (i) health profession and (ii) average length of consultation (taking the overall median of averages as our cut-off to split our study sample into two subgroups). We also compared item scores according to the overall level of OPTION total scores (taking 25 on the 0–100 scale as our cut-off). We labelled behaviours as 'consistently observed' only when average scores were ≥ 1 (1 – 'perfunctory or unclear attempt to perform the behaviour'). We chose this cut-off value because, on average, very few studies displayed item scores ≥ 2 (2 – 'baseline skill level'). Therefore, 1 on the 0–4 scale was the most clinically significant value available. For similar reasons, we chose the equivalent cut-off value to assess the distribution of OPTION total scores (25 on the 0–100 scale).

Results

Study and sample characteristics

We collected 2406 references using the electronic database search, of which 1267 were screened for potential eligibility. Two reviewers then screened the resulting 151 potentially eligible papers, from which we identified 20 eligible studies (24 citations),[22,23,25–27,35–53] and we gathered 13 more studies (16 citations) through SDM networks[33,54–68] for a total of 33 studies (see Fig. 1). Four used the first version of the instrument, 28 used the second version and one used both.

Table 2 shows the main characteristics of the studies included, which took place in nine countries and five languages. Nine studies were randomized controlled trials (RCTs),[33,35–37,39,47,48,52,58,61–63,65,67] 23 were cross-sectional[22,23,25–27,38,40–46,49–51,53,55–57,59,60,64,66,68] and one was a quasi-experimental longitudinal study.[54] Nine included interventions to implement SDM: five through the use of patient decision aids,[33,48,52,58,61–63,67] two by providing training to health-care providers[39,54] and two by instructing standardized patients to ask specific questions during the consultation.[47,65] Two studies included an identified group of health-care providers trained during a previous study.[25,41]

The number of rated consultations per study ranged from 8 to 352, averaging 95 (SD = 86). The consultations concerned multiple medical conditions in 13 studies[22,23,26,27,39,41,43–46,51,54,57,64,68] and single ones in 20 studies.[25,33,35–38,40,42,47–50,52,53,55,56,58–63,65–67] The most frequent single conditions were cancer,[35–37,53,60] diabetes[38,48,61,62] and depression.[42,47,65] The average length of consultation (available for 21 studies) ranged from 5.5 to 56 min, with a median of 13 min (IQR = 9–24).[22,23,26,27,33,38,39,42,44,46,49–52,54–56,59,60,63–68] Among the 31 studies for which the rated media (i.e. the format in which observers rated the consultations) was available, 10 used audio recordings,[22,23,39,41,44,46,47,51,54–56] eight used video recordings,[25,33,43,48,52,58,59,61–63,67] 11 used transcripts,[26,27,38,42,45,49,50,57,64–66,68] one used both transcripts and audio recordings[35–37] and one used live assessments of the consultations.[53]

The median percentage of female patients per study (available for 26 studies) was 63% (IQR = 57–98); only one study included more than 66% male patients and seven included 100% women.[22,23,26,27,33,35–38,44,45,46–68] Among the 21 studies for which the average age of patients was available,[22,23,25–27,33,35–38,44,45,48–50,52,53,55,56,58,59,61–64,66–68] two averages were <40 years, 12 ranged from 40 to 59 years and seven were ≥ 60 years.

The number of health-care providers (available for 32 studies) rated with OPTION ranged from 2 to 152, with a median of 16 (IQR = 8–23).[22,23,25–27,33,35–39,41–68] Sixteen studies assessed general practitioners,[22,23,25–27,38,39,41–43,46,50–53,56,64,65] four assessed multiple professionals (such as general practitioners, physician assistants, nurses and residents),[47,48,57,58,67] 10

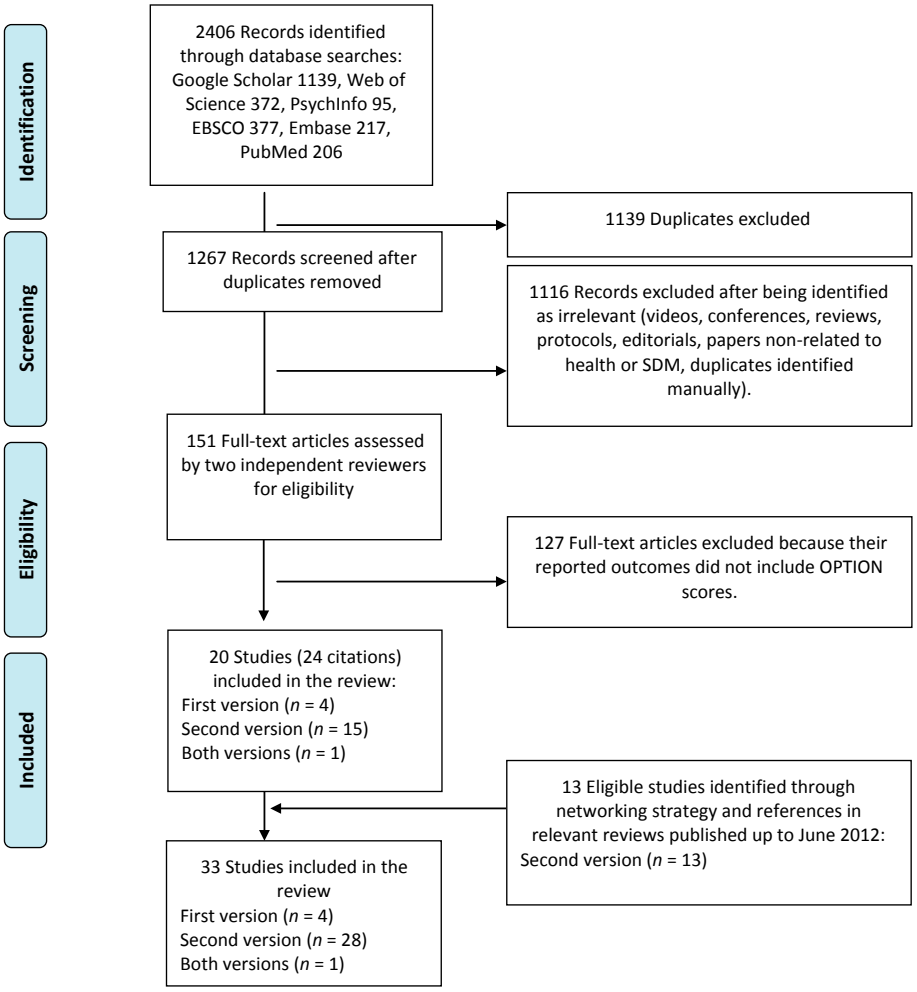

Figure 1 Flow diagram of the studies included.

assessed medical specialists (such as cardiologists, psychiatrists, oncologists)[33,35–37,40,44,45,49,55,59–61] and three assessed non-physicians (dietitians[66,68] and nurses[54]). The percentage of female health-care providers (available for 25 studies) ranged from 0 to 100%, with a median of 41% (IQR = 33–70).[22,23,25–27,33,35–39,42–48,50,52–54,56,59,61–66,68]

The original (attitude) and revised (magnitude) versions of the OPTION scale were used in 5[23,39–41,43] and 29[22,25–27,33,35–38,42,44–68] studies, respectively. When reported, average total scores produced with the revised scale and unaffected by interventions to implement SDM ranged from 3 to 68 (n = 28) on a 0–100 scale, with an overall mean of 23 (SD = 14). Average total scores of those affected by interventions to implement SDM ranged from 8 to 50 (n = 8), with an overall mean of 34 (SD = 8).

Patient-involving behaviours across different clinical contexts (revised OPTION scale)

Table 3 shows the proportion of studies (statistically unaffected by interventions) in which the OPTION raters consistently observed a score ≥ 1 on the 0–4 magnitude scale. Across 29 studies, 11 (38%) displayed an average total score ≥ 25,[33,44,45,48,52,53,55,59,65,66,68] one of which displayed a score ≥ 50 (consultations with patients with breast cancer).[53] One of nine studies (11%) with average consultation lengths <13 min (the global median) scored ≥ 25,[52] compared with eight of 12 (67%) for studies

Table 2 Study and sample characteristics

Characteristics of study					Characteristics of rated consultations		
1st author	Year	Country	Language	Design	*N*	Average duration (min)	Clinical condition
First version of the instrument (attitude scale)							
Elwyn	2003	UK	English	Cross-sectional	186	8.2	Multiple
Elwyn	2004	UK	English	Clustered-RCT with crossover	352	12.5	Multiple
Kindler	2005	Switzerland	German	Cross-sectional	21	N/D	Pre-operative consultation
Edwards	2006	UK	English	Cross-sectional (post-training)	17	N/D	Multiple
Siriwardena	2006	UK	English	Cross-sectional	252	N/D	Multiple
Second version of the instrument (magnitude scale)							
Elwyn	2005	UK	English	Cross-sectional	186	8.2	Multiple
Loh	2006	Germany	German	Cross-sectional	20	16.1	Depression
Goossensen	2007	Netherlands	Dutch	Cross-sectional	61	13	Multiple (mostly depression and other mood disorders)
Goss	2007	Italy	Italian	Cross-sectional	235	11	Multiple
Goss	2008	Italy	Italian	Cross-sectional	80	N/D (about 40 min)	Multiple (mostly depression and other mood disorders)
Weiss and Peters	2008	UK	English	Cross-sectional	123	Median = 8.5	Multiple
Young	2008	USA	English	RCT	287	N/D	Depression
Mullan	2009	USA	English	Clustered-RCT	51	N/D	Diabetes
Nannenga	2009	USA	English	Clustered-RCT	44	N/D	Diabetes
Burton	2010	UK	English	Cross-sectional	85	5.5	Coronary artery disease/ heart valve disease
Butow	2010	Australia and New Zealand	English	RCT	55	N/D	Breast cancer
Gagnon	2010	Canada	French	Cross-sectional	128	6.5	Down syndrome screening
McKinstry	2010	UK	English	Cross-sectional	106	7.4	Multiple

	Characteristics of rated patients		Characteristics of rated health professionals				Average OPTION total score ± SD (range = 0–100)	
Rated media	Gender (% females)	Age (years)	*N*	Profession	Gender (% females)	Age (years)	No intervention	Intervention
Audio	68	43	21	General practitioners	38	38	17 ± 8	
Audio	N/D	Range = 45–65	20	General practitioners	40	38	29 ± 15	47 ± 12
N/D	N/D	N/D	N/D	Anaesthetists	N/D	N/D	27 ± 17*	
Audio	N/D	N/D	8	General practitioners	N/D	N/D	–	63
Video	N/D	N/D	36	General practitioners	64	34	34	
Audio	68	43	21	General practitioners	38	38	3 ± 2	
Transcript	N/D	N/D	9	General practitioners	44	45	15 ± 12	
Audio	28	37	8	Psychiatrists	50	31	43 ± 13	
Transcript	69	45	6	General practitioners	0	46	21 ± 9	
Transcript	61	44	16	Psychiatrists	41	38	27 ± 13	
Audio	N/D	N/D	12	General practitioners	33	42	4 ± 2	
Audio	100	N/D	151	Multiple professionals	33	46	21 ± 7	25 ± 7
Video	57	63	33	Multiple professionals	11	N/D	28 ± 12	50 ± 18
Video	48	65	16	Diabetologists	5	N/D	4	8
Transcript	39	Median = 65.5 for men; 64 for women	8	Cardiologists	N/D	N/D	23	
Audio + Transcript	100	53	20	Oncology specialists	45	47	23 ± 9	
Transcript	100	29	41	General practitioners	73	33	19 ± 7	
Audio	62	N/D	19	General practitioners	N/D	Median = 45	19 ± 9	

Table 2 Continued

Characteristics of study					Characteristics of rated consultations		
1st author	Year	Country	Language	Design	*N*	Average duration (min)	Clinical condition
Politi	2011	USA	English	Cross-sectional	75	N/D	Breast cancer
Pellerin	2011	Canada	French and English	Cross-sectional	152	28.7	Multiple
Hirsch	2011	Germany	German	Cross-sectional	40	N/D	Cardiovascular disease prevention
Montori	2011	USA	English	RCT	70	Median = 12.4	Osteoporosis
Shepherd[†]	2011	Australia	English	RCT with crossover	36	26	Depression
Vaillancourt	2012	Canada	French	Cross-sectional	19	50	Multiple
Kasper	2012	Germany	German	RCT	76	15.8	Multiple sclerosis
Hess	2012	USA	English	RCT	200	N/D	Chest pain
Brinkman	2011	USA	English	Cross-sectional	26	Median = 37.8	ADHD in children
Sonntag	2012	Germany	German	Cross-sectional	58	9.17	Obesity management/ counselling
Langseth	2012	UK	English	Cross-sectional	49	16.2	Cardiac arrhythmia
Weber	UP	Switzerland	German	Longitudinal (quasi-experimental)	115	13.6	Multiple
Hochstenbach	UP	Netherlands	Dutch	Cross-sectional	11	24	Gynecological cancer
Knapp	UP	Germany	German	Cross-sectional	30	10.5	Diabetes
Forschung	UP	Germany	German	Cross-sectional	63	N/D	Multiple
Vaillancourt	On-going	Canada	French	Cross-sectional	8	56	Dyslipidaemia

UK, United Kingdom; USA, United States of America; N/D, no data available or unclear data; RCT, randomized controlled trial ADHD, attention

* In the Kindler et al. study, items *Assessing preferred approach* and *Indicating need to review/defer* were excluded. Thus, the mean score

[†]In addition to the participants described in publication, the Shepherd et al. study included consultations between patients with bowel cancer

with average consultation lengths ≥ 13 min.[33,44,45,55,59,65,66,68] Medical specialists and non-physicians displayed, on average, total scores ≥ 25 and item scores ≥ 1 more frequently than general practitioners. However, they also displayed average consultation lengths ≥ 13 min more frequently than general practitioners. Among the studies for which

	Characteristics of rated patients		Characteristics of rated health professionals				Average OPTION total score ± SD (range = 0–100)	
Rated media	Gender (% females)	Age (years)	*N*	Profession	Gender (% females)	Age (years)	No intervention	Intervention
Live witness	100	51	5	General practitioners	40	N/D	68 ± 18	
Transcript	61	47	152	General practitioners	70	31	24 ± 8	
Video	N/D	Median = 63	15	General practitioners	33	Range = 44–56	15 ± 10	24 ± 8
Video	100	67	45	General practitioners	20	45	27	50
Transcript	100	N/D	18	General practitioners	72	N/D	25	36
Transcript	58	40	19	Dietitians	100	39	29 ± 8	
Video	65	40	4	Neurologists	75	N/D	30 ± 10 (pooled before/after)	
Video	59	55	51	Multiple professionals	N/D	N/D	7	27
Video	38% for children (92% female guardians)	40	10	Paediatricians	10	49	29 ± 12	
Audio	65	57	10	General practitioners	70	51	18 ± 7	
Audio	47	61	2	Cardiologists	N/D	N/D	49	
Audio	50	N/D	15	Nurses	93	N/D	18	50
N/D	100	N/D	7	Gynecological oncologists	N/D	N/D	22 ± 11	
Transcript	50	66	3	General practitioners	33	N/D	13 ± 7	
Transcript	63	N/D	24	Multiple professionals	N/D	N/D	12 ± 6	
Transcript	63	57	8	Dietitians	100	39	28 ± 6	

deficit hyperactivity disorder; SD, standard deviation.
reported here is a standardized sum of only 10 items.
and oncologists.

such data were available, the percentages of studies with average consultation lengths $\geq$13 min were 80% among medical specialists and 100% among non-physicians, compared with 25% among general practitioners. Across clinical conditions, three of the five studies revolving around depression and other mood disorders displayed average scores $\geq$25,[44,45,65] compared with 1/3 for diabetes,[48] 1/3 for cancer[53] and 2/2 for nutrition counselling (average

Table 3 Distribution of patient-involving behaviour performances across subgroups [*n*/*N* (%)]

	List of patient-involving behaviours	Proportion *n*/*N* (%) of studies with average item score ≥1 (total score ≥25)*,†,‡							
		Overall results	Health professionals§			Average consultation length (min)		Average OPTION total score (0–100)†	
	The health professional…	All studies [*n*/*N* (%)]	General practitioners [*n*/*N* (%)]	Specialists [*n*/*N* (%)]	Non-physicians [*n*/*N* (%)]	<13 [*n*/*N* (%)]	≥13 [*n*/*N* (%)]	<25 [*n*/*N* (%)]	≥25 [*n*/*N* (%)]
1	draws attention to an identified problem as one that requires a decision-making process	14/17 (82)	6/9 (67)	6/6 (100)	2/2 (100)	5/7 (71)	7/8 (88)	7/10 (70)	7/7 (100)
2	states that there is more than one way to deal with the identified problem ('equipoise')	5/16 (31)	2/9 (22)	3/5 (60)	0/2 (0)	1/6 (17)	3/8 (38)	1/9 (11)	4/7 (57)
3	assesses patient's preferred approach to receiving information to assist decision making	1/17 (6)	0/9 (0)	0/6 (0)	1/2 (50)	0/7 (0)	1/8 (13)	1/10 (10)	0/7 (0)
4	lists 'options', which can include the choice of 'no action'	10/17 (65)	5/10 (50)	4/5 (80)	1/2 (50)	2/6 (33)	6/9 (67)	3/9 (33)	7/8 (88)
5	explains the pros and cons of options to the patient (taking 'no action' is an option)	11/17 (65)	5/10 (50)	5/5 (100)	1/2 (50)	2/6 (33)	7/9 (78)	3/9 (33)	8/8 (100)
6	explores the patient's expectations (or ideas) about how the problem(s) are to be managed	10/16 (63)	5/9 (56)	4/5 (80)	1/2 (50)	2/6 (33)	6/8 (75)	4/9 (44)	6/7 (86)
7	explores the patient's concerns (fears) about how the problem(s) are to be managed	7/16 (44)	2/9 (22)	4/5 (80)	1/2 (50)	1/6 (17)	5/8 (63)	1/9 (11)	6/7 (86)
8	checks that the patient has understood the information	8/16 (50)	3/9 (33)	3/5 (60)	2/2 (100)	1/6 (17)	5/8 (63)	4/9 (44)	4/7 (57)
9	offers the patient explicit opportunities to ask questions during the decision-making process	13/17 (76)	5/9 (56)	6/6 (100)	2/2 (100)	3/7 (43)	8/8 (100)	6/10 (60)	7/7 (100)
10	elicits the patient's preferred level of involvement in decision making	0/18 (0)	0/10 (0)	0/6 (0)	0/2 (0)	0/8 (0)	0/8 (0)	0/11 (0)	0/7 (0)
11	indicates the need for a decision-making (or deferring) stage	9/16 (56)	4/9 (44)	5/5 (100)	0/2 (0)	3/6 (50)	4/8 (50)	3/9 (33)	6/7 (86)
12	indicates the need to review the decision (or deferment)	11/16 (69)	5/9 (55)	5/5 (100)	1/2 (50)	2/6 (33)	7/8 (88)	4/9 (44)	7/7 (100)
	OPTION total score	11/29 (38)	3/13 (23)	5/9 (56)	2/3 (67)	1/9 (11)	8/12 (67)	–	–

*An average score lower than 1 (on the 0–4 scale) or 25 (on the 0–100 scale) indicates that even a 'perfunctory or unclear attempt to perform the behaviour' was not observed consistently, while a score higher than 1 but lower than 2 indicates that an attempt (perfunctory or unclear) was observed, but that the behaviour itself could not be performed to a 'baseline skill level'.

†The average values used here are either means or medians. When available, we always relied on means for computations.

‡The proportion *n*/*N* (%) with average item score ≥2 (total score ≥ 25) were as follows: item 1: 5/17 (29%); item 2: 2/16 (13%); item 3: 0/16 (0%); item 4: 2/17 (12%); item 5: 1/17 (6%); item 6: 2/16 (13%); item 7: 0/16 (0%) item 8: 0/16 (0%) item 9: 3/17 (18%) item 10: 0/18 (0%); item 11: 2/16 (13%); item 12: 3/15 (20%); total score: 1/29 (3%).

§Studies whose participants were 'multiple professionals' were excluded.

Table 4 Statistical associations between OPTION total scores and study variables*

Associations with OPTION total scores	Interventions			Patients			Health professionals			Consultations	
	Decision aids	Standardized patients	Health professional training	Age	Gender	Role preferences	Age	Gender	Experienced or licensed vs. pre-licensed	Duration	Clinical condition/severity
Positive (%)	80	100	100	11	0	0	0	25	25	53	0
Non-significant (%)	20	0	0	89	100	100	86	75	75	47	100
Negative (%)	0	0	0	0	0	0	14	0	0	0	0
n	5	2	2	9	6	3	7	8	4	15	6

*We included only the associations between study variables and OPTION total scores derived from the second version of the instrument (magnitude scale).

length of consultation for dietitians was $\geq$ 50 min).[66,68]

The three most consistently observed behaviours were *identifying the problem* (item 1), *providing opportunities for questions* (item 9) and *indicating need to review/defer* (item 12): they were consistently observed, respectively, in 82, 76 and 69% of studies and performed at a baseline standard in 29, 18 and 20%. The three least consistently observed behaviours were *eliciting preferred involvement* (item 10), observed in 0/18 studies, *assessing preferred approach* (item 3), observed once – with nursing students in a study by Weber *et al.*[54] – among 17 studies, and *explaining equipoise* (item 2), observed in 5/16 studies and performed to a baseline standard in 2/16 studies. The clinical conditions for which *explaining equipoise* was performed to a baseline skill level were cardiovascular disease prevention[25] and cardiac arrhythmia,[55] and those for which only perfunctory or unclear attempts were made were attention deficit hyperactivity disorder (ADHD) in children,[59] osteoporosis[52] and depression/mood disorders.[44] Among studies with average consultation length $\geq$13 min, all behaviours were consistently observed at an equal or greater frequency than among studies with average length <13 min. When average OPTION total scores were $\geq$25, all behaviours except *assessing preferred approach* and *eliciting preferred involvement* were more consistently observed.

Associations between OPTION total scores and study variables

Table 4 shows the frequency with which study characteristics were reported as correlating (either positively, negatively or non-significantly) with OPTION total scores derived from the revised scale. When assessed, 8/9 interventions[25,47,48,52,54,61,65,67] were associated with higher OPTION scores. One study even showed that OPTION scores of health professionals who had been trained in SDM during an earlier study were significantly higher than scores of untrained health professionals[25] while

Table 5 Quality assessment of outcomes reporting across peer-reviewed studies

Study*		Rating procedure and psychometric data				OPTION item-level data			
1st author	Year	2 raters or more assessed the consultations	Intra-rater reliability measures reported?	Inter-rater reliability measures reported?	Internal consistency measures reported?	Response rate of each value on the 5-point rating scale (0, 1, 2, 3, 4) by item	Scores for all rated items	Ranges of scores by item	Standard deviations of scores by item
Elwyn	2003	X	X	X	X	X	X	X	X
Elwyn	2004	X							
Elwyn	2005	X	X	X	X	X	X	X	X
Kindler	2005	X		X			X	X	X
Edwards	2006	X							
Loh	2006	X		X			X	X	X
Siriwardena	2006	X							
Goossensen	2007			N/A	X		X		
Goss	2007	X	X	X	X	X	X	X	X
Goss	2008	X		X	X	X	X	X	X
Weiss and Peters	2008			N/A					
Young	2008	X	X	X					
Mullan	2009	X		X					
Nannenga	2009	X							
Burton	2010	X							
Butow	2010			N/A					
Gagnon	2010	X	X	X	X		X	X	X
McKinstry	2010	X		X					
Politi	2011			N/A					
Pellerin	2011	X	X	X			X	X	X
Hirsch	2011	X		X	X		X		X
Montori	2011	X	X	X			X	X	
Shepherd	2011	X							
Brinkman	2011	X		X			X	X	
Kasper	2012	X	X	X			X		X
Hess	2012	X		X					
Sonntag	2012	X		X					
Langseth	2012			N/A		X	X	X	
Vaillancourt	2012	X		X	X		X	X	

N/A, not applicable.
*Unpublished studies: Weber *et al.*, Forschung *et al.*, Vaillancourt *et al.*'s on-going study, Knapp *et al.*, Hochstenbach *et al.*

other studies provided longitudinal data suggesting that clinicians who had been trained in SDM showed improved OPTION scores that were sustained over time.[39,41,54,69] In at least 75% of studies for which such data were available, neither gender nor age of participants were significantly correlated with OPTION scores. The correlation of scores with patients' preferred role in medical decision making was non-significant in 3/3 studies,[33,49,64] and correlation of scores with patients' clinical condition or the severity of their condition was non-significant in 6/6 studies.[25,44,45,47,49,53] However, lengthier consultations were associated with higher OPTION scores in 53% of the studies (8/15).

Quality assessment

Considering only the 29 peer-reviewed papers assessed, Table 5 shows to what extent authors reported sufficient information – as defined by our team of authors – to demonstrate that their rating procedure met adequate standards, as well as how detailed was the information they reported about OPTION outcomes (scores and psychometric results). Twenty-four papers (83%) reported that two raters or more assessed the consultations, and 75% of the 24 reported inter-rater reliability measures. Of all the 29 papers, 28% reported intra-rater reliability, and 28% reported internal consistency measures. Regarding OPTION item-level data, 17% of the 29 papers reported response rates for each value on the magnitude scale (0, 1, 2, 3, 4); and for each rated item, 52% reported scores, 41% reported ranges of scores and 34% reported SDs.

Discussion

The fact that the OPTION instrument has been used in so many different clinical contexts suggests that there is interest in measuring patient involvement in a variety of health-care situations. However, by systematically reviewing the literature, we found 33 studies in which the extent to which health-care providers involved patients in decision making – as assessed with OPTION – was generally low. Across health professions, patients' clinical conditions and average lengths of consultations, health-care providers demonstrated varying attempts to facilitate patient involvement in decision making. Our findings lead us to make four principal observations.

First, the most salient pattern pertained to the overall level of scores: generally, without interventions to implement SDM, most health-care providers did not demonstrate that they were attempting to involve their patients with consistency, as shown by the fact that a majority of studies reported an average total score <25. After interventions, however, some studies displayed significant improvements of OPTION scores (≥ 50). Previous work has shown that health-care providers can learn to engage patients in the process of care.[70,71] We found results hinting that clinicians trained in SDM, once they have integrated patient-involving behaviours into their practice, may continue to work this way (improved OPTION scores were sustained over time).[25,39,41,54,69] We also found that patient involvement does not depend solely on the health-care providers' competencies, because introducing decision aids or assigning pre-scripted questions for patients to ask during consultations nearly always improved the health-care providers' overall demonstration of patient-involving behaviours. Therefore, it seems unrealistic to ask health-care providers to bear the responsibility of involving their patients in health-care decisions single-handed – the patients themselves and communication tools are also a big part of the solution.

Second, the distribution of item scores displayed some interesting tendencies. Notably, few health-care providers made any attempt to perform key elements of patient-involving behaviours. That is, they did not make even a *perfunctory or unclear attempt* to perform most of the patient-involving behaviours (item score ≥ 1). More specifically, behaviours that required tailoring care to patient preferences were attempted even less consistently across

studies. The two least-observed behaviours were *assessing the patient's preferred approach* (item 3) and *eliciting preferred involvement* (item 10), which require the health-care provider to enquire about the patient's preferences, while the third least observed behaviour (item 2, *equipoise*) requires the health-care provider to explicitly state that the best way to deal with the problem will ultimately depend on the patient's preferences – even once the patient understands all the pros and cons of each option. Contrary to the claim by Nicolai *et al.*[34] that *explaining equipoise* (item 2) is logically implied by *explaining the pros and cons of the options* (item 5), health-care providers who consistently listed the options available to their patients did not necessarily also emphasize that the patients could choose any of these options – as we would expect if *equipoise* was explained. In all studies where *explaining equipoise* was observed, however, the clinical context was such that the success of certain options would depend on the patient's willingness to take an active part in the caring process (such as lifestyle/behaviour change or adherence to treatment).[25,44,52,55,59] At the other end of the spectrum, the behaviours most frequently observed were ones that health-care providers could routinely apply with any patient in any clinical context – *identifying the problem* (item 1), *providing opportunities for questions* (item 9) and *indicating need to review/defer* (item 12). Regarding *providing opportunities for questions*, all studies in which this was not observed consistently had an average consultation length <13 min.[22,27,38,46] Finally, behaviours that involved the health-care provider tailoring his/her discourse to the clinical context to communicate evidence (*listing options* and *explaining pros and cons*) were also attempted relatively consistently. These results suggest that future interventions aiming to improve the tailoring of care to patient preferences are needed.

Third, while we observed variations in patient-involving behaviours by clinicians across subgroups of professions, it is unclear whether these variations reflected differences in each subgroup's overall aptitudes for patient involvement rather than differences caused by the varying consultation lengths. The latter hypothesis is plausible as scores usually improved both overall and within each subgroup with lengthier consultations. Among other robust tendencies, we noticed that the behaviours most frequently observed within all subgroups of professions, average consultation lengths and average total scores were *identifying the problem*, *providing opportunities for questions* and *indicating need to review/defer* (items 1, 9 and 12), while the behaviours least frequently observed were *explaining equipoise*, *assessing preferred approach* and *eliciting preferred involvement* (items 2, 3 and 10). Moreover, the latter two items were not observed more frequently when OPTION total scores were higher, nor when comparing professions. It has been reported before that some clinicians feel that asking questions related to these two items is inappropriate.[44] However, concerns have been voiced that, despite current beliefs and culture among health-care providers, the clinician's responsibility should go beyond the accurate diagnosis of medical condition to the diagnosis of preferences, because the misdiagnosis of patient preferences can lead to inappropriate decisions.[9] Our review, showing that clinicians make little attempt to enquire about preferences (items 3 and 10) let alone tackle the key issue of *equipoise* (item 2), seems to support the claim that preference misdiagnosis is rife.[9]

Fourth, based on the reported statistical associations between OPTION scores and study variables, we found potential insights about which factors affect health-care providers' propensity to facilitate patient involvement. In the relevant studies, longer consultations usually coincided with higher OPTION total scores. In a study by Pellerin *et al.*[64], most associations between OPTION scores and study variables lost statistical significance after controlling for consultation duration. Moreover, we found more studies with OPTION scores ≥ 25 among the subgroup of studies with higher average consultation

lengths. We also found that the patients' self-reported 'preferred role in decision making' was never associated with variations in patient-involving behaviours. Considering that we found no studies in which clinicians consistently attempted to enquire about their patients' preferred role in the decision-making process (item 10), our results support the claim that most health-care providers mistakenly *think* that they can guess the patient's preferred level of involvement without asking.[72,73] This does not imply, however, that physicians are completely blind to their patients' preferred level of involvement, since when patients demonstrated more initiative by either asking more questions[47,65] or taking up more talking time[38] during the consultation, health-care providers usually responded by applying more patient-involving behaviours. Another possible explanation for the lack of association between patient involvement and preferred role in decision making is the fact that the latter measure[74] describes a general preference. In other words, it does not refer to the specific decision-making context in which OPTION is used, while concretely the patient's preferred role in decision making is highly context-sensitive, because it depends on many variables such as uncertainty, severity of the condition and knowledge about it.[75–77] Furthermore, if patients do not understand what their options are, what the pros and cons of those options are or why the best choice may depend on what matters most to them, they may not be in a position to report their 'preferred role in decision making'.

Study limitations

Although our search strategy was as extensive as possible, we may not have identified all studies in which OPTION has been used. Before extracting data, we contacted authors for the necessary specifications, but we did not ask them to review our extraction or interpretation of their data. Also, while we reported distributions of scores across studies, we did not perform statistical tests or devise regression models due to the incompleteness and fuzziness of the available data. For example, we could not compare scores by subgroup of rating media, because we realized while extracting such data that we could not identify with certainty from which format the scores were derived: authors might have reported scores derived from rating the recordings directly or reported scores derived from rating transcripts of the recordings. Ultimately, the mean values we report give an overview of the state of implementation rather than a precise estimate, as could be derived from a meta-analysis. Finally, our reporting of statistical associations between OPTION scores and study variables might be biased: we report here the correlations we were able to extract from published studies but cannot be sure that they reported *all* statistical associations assessed.

Conclusions and implications

Across 33 studies from many different clinical settings and languages, measures of patient involvement were low overall but improved through interventions. A wide variety of patient-involving behaviours were observed across professions. Despite these variations, the majority of behaviours could be observed across all contexts, but more consistently in studies with lengthier consultations. The behaviours that rarely improved, regardless of the subgroups, were those requiring the tailoring of care to the patients' preferences. Thus, while SDM appears to be feasible in many clinical and cultural contexts, the most 'patient-centred' aspects of SDM appear to be harder to implement in practice, for reasons worth exploring in future research.

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Conflict of interest

There is no identified conflict of interest. Glyn Elwyn is the author of the OPTION instrument (http://www.optioninstrument.com/), OPTION book and OPTION training manual.

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